



Comments: Dpt: ENCT Date: 14. Sep 2023  
Name: Norman Bruckhaus

REFERENCE - SAMPLE

GENERAL DATA

Project number 1510 CD77  
Manufacturer project number 2022-173  
PED Information Category: IV - Module: G - Fluid Group: II

DESIGN DATA

	INNER VESSEL	OUTER VESSEL
Medium	Liquid Argon (LAR)	Evacuated Perflite
Design pressure	7.73 bar(g)	Full Vacuum
Operating pressure	1.5 bar(a)	-1 bar (g)
Safety valve set pressure	3.5 bar(g)	-----
MAWP (Ps)	3.5 bar(g)	-----
Design temperature min./max.	-196 / +50 °C	-32 / +38 °C
Operating temperature	-196 °C (min.)	-----
Cold stretching pressure	11,60 bar(g)	-----
Gross volume	211000 L	-----
Net volume (%95)	200450 L	-----
Empty Weight	~ 61600 kg	
Fluid Weight ( 1380 kg/m³ @ 0.5 barg)	~ 276620 kg	
Max. Total Weight	~ 338220 kg	
Insulation Thickness	290 mm	
Thermal Conductivity of Insulation	0,0017 W/m-K	
Capacity vacuum space	-----	89,27 m³
Joint efficiency	1	-----
RT scope	100% LW's, 25% CW's, 100% crossing,	N/A
PT scope	100% nozzle welding, crossing, lifting lugs, supports, grinding area	-----
MT scope	N/A	-----
Other NDE	None, not required per code	Visual Inspection
Corrosion allowance	0.0 mm	0.0 mm
PWHT	None, not required per code.	Not Required
Seismic design	N/A	-----
Wind design	-----	EN 1991-1-4 (22m/s wind velocity)
Impact Testing	Acc. to PED, Annex I, para 7.5, impact test is required at the lowest design temp. (-196°C) All material test reports of pressure parts for the inner vessel must be shown results of impact test.	
Snow loading	-----	EN 1991-3
Other loads	Transport	
Helium leak testing	ARQ2041B (IN.QC.030)	
Dye Penetrant Test	All welds and nozzles	
Color of Outer Jacket	RAL 9016	

a. ALL DIMENSIONS ARE IN mm  
b. DO NOT TAKE A MEASUREMENT FROM THIS DRAWING  
c. 100% ON LONG SEAM & 25% ON C-SEAM 100% FOR ALL T-JOINTS.  
d. CAPACITY INDICATED IN DESIGN DATA TABLE ARE AFTER COLD STRETCHING. ACTUAL CAPACITY MAY BE WITHIN ±3%  
e. REGULATION FOR SPECIFIC COUNTRIES SUPPLY  
-EUROPEAN COUNTRIES SUPPLY: CE MARKING (AS PER PED 2014/68/EU) WITH NOTIFIED BODY  
f. \*\*\* CRITICAL DIMENSION  
g. ASME MATERIALS LISTED IN THIS MATERIAL LIST CAN BE USED WITH PARTICULAR MATERIAL APPRAISAL (PMA).  
h. THE DRAWING / OVERALL DIMENSIONS ARE NOT SUBJECTED TO USE FOR ROAD PERMITS AND TRANSPORT ORGANIZATION, AS BUILT DRAWING / DIMENSIONS CAN BE USED IF SUCH AN ORGANIZATION REQUIRES.  
i. TOLERANCE MEASUREMENTS WHICH ARE NOT GIVEN  
SEE EN ISO 13920 CLASS "C" + "G".  
m. THIS GA DRAWING IS PREPARED ACCORDING TO ATR220859 NUMBERED P&ID.  
n. FOR THE TIGHTENING TORQUE VALUES, REFER TO THE EQUIPMENT'S USER MANUALS.  
o. SCREW THREAD SHALL BE CONTROLLED AND TIGHTENED ACCORDING TO IN.MA.129 NUMBERED ARITAS WORK INSTRUCTIONS.  
p. DRAWING NUMBER ATR220716 IS USED AT THE BIDDING PHASE. UPTODATE G.A. DRAWING NUMBER IS ATR220716

Notes

DEFINITION OF PIPE				CONNECTION TABLE			
Tag	Description	Size	Type (*)	Tag	Weld End Connection	Type	Size Rating
N01	Filling From Cold Box Line	40	III	CP1	Ø48,3 x 2,0 mm	End Plate	DN40 PN40
N02	Product Discharge Line	150	III.b	CP3	Ø168,3 x 2,0 mm	End Plate	DN150 PN16
N03	Gas To Control Valve Line	50	I	CP5	Ø60,3 x 2,0 mm	End Plate	DN50 PN40
N04	Safety Line	50	I	CP7	EN 1092-1	Flange	DN80 PN16
				CP12	Ø60,3 x 2,0 mm	End Plate	DN50 PN40
N06	Gas From PBU Line	50	I	CP6	Ø60,3 x 2,0 mm	End Plate	DN50 PN40
N07	Liquid to PBU Line	25	III.b	CP4	Ø33,4 x 2,0 mm	End Plate	DN25 PN40
N16	Trycock Line	25	I				
N17	Return Line Truck Filling Pump Line	50	III	CP2	EN 1092-1	Flange+ End Plate	DN50 PN40
CO8A	Lower Level Line	8	I.a	CP8	---	Plug	OD 12
CO8B	Additional Lower Level Line	8	I.a	CP10	---	Plug	OD 12
CO9A	Upper Level Line	8	I	CP9	---	Plug	OD 12
CO9B	Additional Upper Level Line	8	I	CP11	---	Plug	OD 12

(\*) I : Pipe through stainless steel plate  
II : Pipe through stainless steel sleeve  
III : Pipe through thermal barrier  
a : With siphon between shells  
b : With siphon in insulation pipe

DRAWING SYMBOLS

IDENTIFICATION	WELD PROCEDURE
DETAIL REFERENCE	SECTION REFERENCE
ITEM NUMBER	

TOLERANCES UNLESS OTHERWISE SPECIFIED	LINEAR	HOLE SIZE
See Notes	See Notes	See Notes
ANGLE	HOLE LOCATION	See Notes
See Notes	See Notes	
ALL DIMENSIONS IN mm		
FIRST ANGLE PROJECTION		
WEIGHT SEE NOTES		

H-2/A-5	INSTALLATION UPDATED	31.08.2023	K.F.C.	M.T.	M.A.	M.B.	O.U.
B-2/D-1	LINDE COMMENTS	25.05.2023	K.F.C.	M.T.	M.A.	M.B.	O.U.
F-4/H-4	LINDE COMMENTS	27.04.2023	K.F.C.	M.T.	M.A.	M.B.	O.U.
C-6	LINDE COMMENTS	30.03.2023	K.F.C.	M.T.	M.A.	M.B.	O.U.
---	LINDE COMMENTS	28.03.2023	K.F.C.	M.T.	M.A.	M.B.	O.U.
---	LINDE COMMENTS	13.03.2023	K.F.C.	M.T.	M.A.	M.B.	O.U.
---	FIRST ISSUE	09.01.2023	K.F.C.	M.T.	M.A.	M.B.	O.U.
REV. CN NO	REVISION DESCRIPTION						



SUBJECT / TITLE:  
211000 L VERTICAL LAR STORAGE VESSEL GENERAL ARRANGEMENT DRAWING

RELEASE PURPOSE	-----
PROPOSAL DWG NO	ATR2C0276
DRAWING NO	ATR2C0276-01
PAPER FORMAT	A2
SCALE: --	SHEET: 1 OF 1

Title:	GENERAL ARRANGEMENT DRAWING LAR PRODUCT TANK	Scale: -
Linde Drawing No.	&VD-3-7531-B-ZA 1001 (EN)	Sheet
Size	A2	